



*The iSAFT MIL-STD-1553 Front-End is an advanced Data Front End with BC, RT simulation and traffic generation capabilities that simulates MIL-STD-1553 devices or instruments, enabling S/C integration tests before the availability of Flight Models.*

*It also constitutes a high performing, modern network traffic capture (Bus monitoring –BM), recording and analysis tool for the validation of satellite/spacecraft flight devices or ground testbed devices implementing the MIL-STD-1553 protocol family.*

It provides a 1 - 4 channel MIL-STD-1553 interface with BC and multiple RT simulation and Bus Monitoring capabilities. It is capable of simulating a BC or multiple RTs over the MIL-STD-1553 buses. It is based on the iSAFT graphical tool chain, for the configuration/management of the simulation (locally or remotely). It consists a powerful device for the validation of on-board data networks at early stages, minimizing costs and schedule. It can be part of EGSE Data Front Ends and implement the core functionality of an EGSE controller.

As a Bus Monitoring Tool (Recorder), it is capable of capturing data packets on multiple MIL-STD-1553 buses, time stamping, recording, and delivering them to a powerful Protocol Analyzer for further processing & analysis. Operating on a multi-Gbytes powerful HW platform, the SW environment is based on the iSAFT graphical tool chain, thus allowing the management, filtering & searching of the recordings. It is used for troubleshooting and problem solving at various development stages, minimizing the impact on cost and schedule.

***"The iSAFT 1553 Front-End is powered by Alta Data Technologies (AltaDT) 1553 hardware modules"***

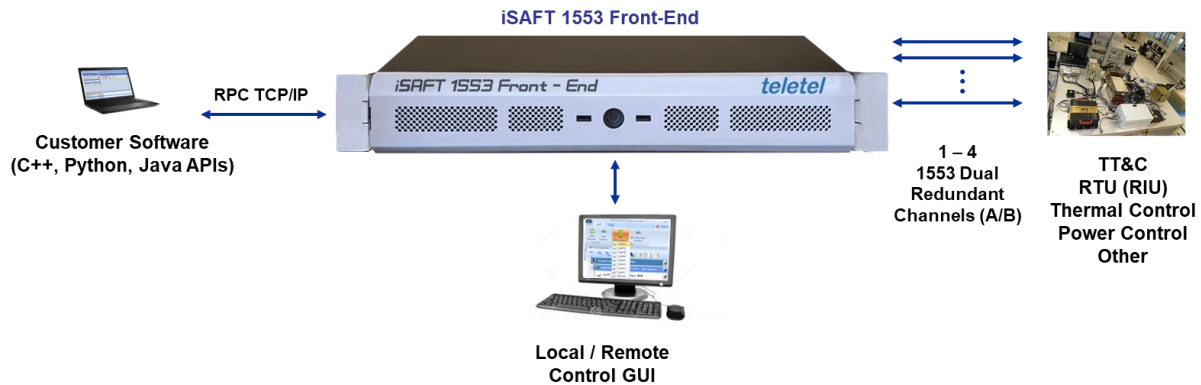


## **Main Features & Competitive Advantages**

- One to four (1-4) independent, dual redundant MIL-STD-1553 channels
- Dual Function (BC, BM or multiple RTs (1-32) and BM simultaneously) or Full Function (BC, multiple RTs and BM simultaneously)
- Complete graphical software environment for controlling and monitoring the hardware
- Support of ECSS-E-ST-50-13C services during BC and RT simulation (time distribution, communication synchronization, get/set data, data block acquisition/distribution (deep and flat modes with best effort or verified length QoS) and terminal management services)
- Easy configuration of Bus Controller via Graphical User interface (definition of bus schedule with commands, scheduling, groups, minor frames, time slots, ECSS-13C services, etc.), export to Excel / CSV file
- Easy configuration of Remote Terminals simulation via Graphical User interface (definition of TX / RX SA Buffers, Mode Codes, ECSS-13C services, etc.)
- Error injection at physical level when operating as BC (at command word and/or at data words) or RT (at status word and/or data words) e.g. sync error, parity error, data word count error, inverted bit errors, etc.
- Error injection at protocol level when operating as BC or RT (at data distribution and acquisition services) e.g. invalid mode, data block size error, protocol reset error, DBC counter error, etc.
- Independent Bus Monitoring per channel with user selected filters, decoding and analysis of traffic, detection of errors at command words, data words and status words
- Real-Time Statistics per channel, Integrated Wireshark Protocol Analyser
- Recordings management, export to XML, Postscript, etc.
- Remote Access APIs in C++, Python, Java (Windows, Linux)
- IRIG support for time synchronization with other components in a testbed (20 ns timestamp resolution)
- Provision of PPS signals, support PPS input for synchronisation of BC major frame from external PPS source or PPS output generation synchronised with the BC major frame (w.r.t. Synchronise without data ModeCode transmission)
- Expandable with additional interfaces (SpaceWire, CAN/CANOpen, SpaceFibre, WizardLink)
- Fully certified for connection to space flight equipment (FMEA)
- Proven solution in multiple EGSE test benches across Europe, Japan, South Korea



## Use Case Example - Emulating OBC and multiple 1553 RTs



### Technical Data

General	
Form factor	1U Rackmount
Dimensions	437 x 370 x 44.4 mm (W x D x H)
Interfaces	1Gbps Ethernet Display Port / HDMI 4 x USB 3
PCI slots	1 x PCIe
CPU	10 cores i5 intel processor
Memory	32GB
Storage	256GB SSD drive for OS 500GB M2 NVMe for data 1TB SSD for Archive
Power supply	110-230V 250W
Operating temp range	0°C to 50°C
Storage temperature	-40°C to 85°C
Storage Humidity	10 ~ 95%
Compliances / Standards	CE, RoHS, FMEA available
Warranty	1 year (extendable)

1553 Interface	
Number of channels	1 to 4 (dual redundant)
Function	Dual Function (BC/Mon or mRT/Mon) or Full Function (BC/mRT/Mon)
Connector	68-Pin SCSI-3 or Twinax connector for each channel
Channel speed	Up to 1Mbps per channel
IP Core	AltaCore-1553 (1553B Notice II & IV compliant)
Protocols	MIL-STD-1553, ECSS-E-ST-50-13C services support
Functionalities	Simulation, Recording, Error Injection, Traffic Generation
Electrical standards	Transformer Coupling (1553B Notice II & IV compliant)

Software	
Supported OS	Windows 10 64bit
Main features (supported by a modern GUI)	Board management, Packet editors (BC Simulation), ECSS-E-ST-50-13C services support, simulation, traffic generation, recording, off-line analysis, statistics, Wireshark protocol analyzer
Remote Access APIs	C++, Python, Java (Windows, Linux)

IRIG Interface	
Type	IRIG-B002 (DCLS)
Functionality	IRIG receiver
Electrical standards	2 - 16 Vpp, 25K input impedance
Connector	DB50 (dedicated cable is required)

### Order Information

- iSAFT06.CB-07-11X (X indicates the number of 1553 channels: 1, 2, 3, 4)

### Contact

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